

PRODUCTION OF BUILDING DECORATIVE LAMINATE

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Abstract

PURPOSE:To raise productivity and obtain a decorative laminate of a high accuracy by a method wherein a fitting projection edge part and a cutout part fittable to the fitting projection edge part are formed on both the end parts of a rectangular substrate formed by laminating a rubber layer or a synthetic resin plate on a wood decorative laminate.

CONSTITUTION:In a method for producing a building decorative laminate A, firstly a rectangular substrate 1 having a fixed width is formed by laminating a lower surface board 1b made of a thin-wall rubber plate or an elastic synthetic resin plate on a lower surface of a wood decorative laminate 1a made of a laminated lumber or the like. After that, a fitting projection edge part 2 of a fixed width having a step part at least on its lower surface is formed by cutting one edge part of the rectangular substrate 1. An engaging groove 5 of an appropriate depth is cut on a lower base end part of the fitting projection edge part 2 to its full length. A cutout part 3 having a crosssectional shape fittable to the fitting projection edge part 2 is formed by similarly cutting the other edge part of the substrate 1. An engaging protuberance 8 of an appropriate depth fittable to the engaging groove 5 is cut on the other of the cutout part 3.

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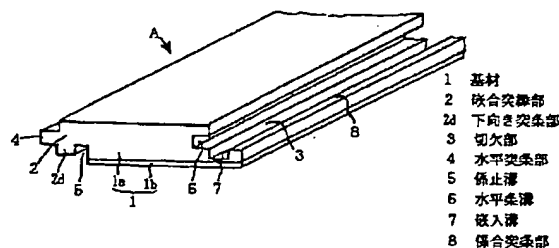
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(54) 【発明の名称】 建築用化粧材の製造方法

(57) 【要約】

【目的】 床材等の建築用化粧材を簡単且つ精度よく製造する。

【構成】 木質化粧材1aの下面に弾性材料からなる下面板1bを貼着してなる一定厚みを有する長方形の基材1において、その基材1の一侧縁部を切削刃によって該一侧端面の中央部から水平方向に突出した水平突条部4を削成すると共に下面を一定厚さだけ段状に切除2cしてその基端に下向きに開口した一定深さの係止溝5を削成することにより、基材1の一侧部側に該係止溝5と上記水平突条部4とを有する一定幅の嵌合突縁部2を形成する一方、基材1の他側縁部を同じく切削刃によって上記嵌合突縁部2が嵌合可能な切欠部3を形成し、この切欠部3の切削加工時に、その一侧端面に上記水平突条部4が嵌入可能な水平条溝6を削成すると共に、他側端に上記係止溝5が係止可能な係合突条部8を削成する。



【特許請求の範囲】

【請求項1】 一定厚みの木質化粧板の中間層ないしは下層に少なくとも一層のゴム又は合成樹脂板を層着して一定幅を有する長方形基材を形成したのち、この長方形基材の一侧縁部に切削加工によって少なくとも下面側に段部を有する一定幅の嵌合突縁部を形成すると共に該嵌合突縁部の下面基端部に適宜深さの係止溝を全長に亘って削成し、一方、基材の他側縁部に同じく切削加工によって上記嵌合突縁部が嵌合可能な断面形状を有する切欠部を削成すると共に該切欠部の他側端に上記係止溝が嵌合可能な係合突条部を削成することを特徴とする建築用化粧材の製造方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は床材や内装材等の建築用化粧材を簡単且つ精度よく製造し得る方法に関するものである。

【0002】

【従来の技術】 従来から、合板などの床下地パネルやコンクリートスラブ等の床下地材上に施工する床材、或いは、建物の内装材として用いられる建築用化粧材Aとしては、図12に示すように、一侧端面に雄実部aを突設する一方、他側端面に該雄実部aが嵌合可能な雌実部bを形成してなる構造のものが広く知られている。また、雌雄実部同士の嵌合では、化粧材が互いに離間する方向にズレが生じるので、同図に示すように、化粧材Aの雌実部b側下面に係合溝cを設ける一方、雄実部a側の下面部に該雄実部aから小間隔を存して上記係合溝cが嵌合可能な突条部dを形成したものが採用されている。

【0003】 このような化粧材Aを得るには、雄実部aの突出側に突条部dが設けられているために、切削工具によって雄実部aと突条部dを削成するには特殊な刃物を要すると共にその切削加工に困難をきたし、熟練を要するものである。そのため、図13に示すように、両側端面に雌雄実部a、bを形成し、且つ一侧下面に側端面から小間隔を存して係合溝cを刻設してなる化粧材基板A₁と、他側端面に前記係合溝cに係合可能な突条部dを突設してなる下面板A₂とを作成したのち、該下面板A₁上に接着剤eを介して化粧材基板A₁を載置し、プレス盤P、P間に挿入して圧着することにより製造している。

【0004】

【発明が解決しようとする課題】 しかしながら、このような製造方法によると、化粧材基板A₁と下面板A₂との位置合わせを正確に行うことが困難である上に、プレス盤P、Pによって圧縮、接着させる際にズレが生じて精度のよい化粧材を製造することができず、雌雄実部a、bとの係合、および係合溝cと突条部dとの係止が円滑に行えない場合が生じるものである。本発明はこのような問題点を解消し得る建築化粧材の製造方法の提供を目的とするものである。

【0005】

【課題を解決するための手段】 上記目的を達成するために、本発明の建築化粧材の製造方法は、まず、一定厚みの木質化粧板の中間層ないしは下層に少なくとも一層のゴム又は合成樹脂板を層着して一定幅を有する長方形基材を形成する。次いで、この長方形基材の一侧縁部に切削加工によって少なくとも下面側に逆L字状の段部を有する一定幅の嵌合突縁部を形成すると共に該嵌合突縁部の下面基端部に適宜深さの係止溝を全長に亘って削成する一方、基材の他側縁部に同じく切削加工によって上記嵌合突縁部が嵌合可能な断面形状を有する切欠部を削成すると共に該切欠部の他側端に上記係止溝が嵌合可能な係合突条部を削成することを特徴とするものである。

【0006】

【作用】 一定厚みと幅を有する長方形基材の両側端面に、適宜な切削工具を使用して嵌合突縁部と該嵌合突縁部が嵌合可能な切欠部とをそれぞれ削成する。この際、基材の一侧端面に対しては、少なくともその下端部を断面逆L字状に切除することにより嵌合突縁部が形成され、他側端面に対しては少なくとも一定厚みの下端部を残して断面L字状に削成する。この切削加工は、基材の両側端面に対して水平方向から切削刃を切り込むことにより容易に行える。

【0007】 次いで、嵌合突縁部の下面基端部に該嵌合突縁部の突出端面から一定間隔を存して一定幅を有する係止溝を削成する一方、他側端面に削成した断面L字状の切欠部の底部を基材の他側端部の一定幅部分を残して溝状に削成することにより、上記嵌合突縁部が嵌合可能な切欠部と上記係止溝が嵌合可能な突条部とが同時に形成される。これらの係止溝や切欠部及び突条部は、切削工具の切削刃を基材の下方及び上方から基材を掘削することにより正確な部位に精度よく形成し得る。

【0008】

【実施例】 本発明の実施例を図面に基いて説明すると、まず、図1に示すように集成材や合板、パーティクルボード、MDF等からなる木質化粧材1aの下面に薄肉のゴム板又は弾性合成樹脂板よりなる下面板1bを接着、一体化して一定幅と厚みを有する長方形の基材1を形成する。次いで、適宜な切削工具（図示せず）によって基材1の一侧部に全長に亘って嵌合突縁部2を削成すると共に他側部に該嵌合突縁部2が嵌合可能な断面形状を有する切欠部3を削成する。

【0009】 これらの嵌合突縁部2と切欠部3を削成する手順を述べると、基材1の一侧部においては図2に示すように、中央部を一定厚み残すようにしてその上下部を基材1の側端面から一定幅をもって断面L字状、逆L字状に切除2a、2bすることにより、これらの切除部2a、2b間に側端面中央から一定長外側方に突出した一定幅を有する水平突条部4を形成すると共に、下側の逆L字状切除部2bの基端下部から下面板1bおよびその上側の木質

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化粧材1aの下層部をさらに一定幅、水平方向に切除して段部2cを削成し、前記水平突条部4の突出端面から段部2cの基端までの部分を嵌合突縁部2に形成するものである。

【0010】なお、上記切除部2a、2b及び段部2cは切削工具の切削刃を基材1の板幅方向（水平方向）に切り込むことによって容易に形成することができる。さらに、この嵌合突縁部2の下面基端部、即ち、上記段部2cの基端部に、図3に示すように、下面から一定深さに達する一定幅を有する係止溝5を削成する。この係止溝5は切削工具の切削刃を上向きにして切り込むことによって容易に形成し得る。係止溝5の削成によって水平突条部4の下面基端と該係止溝5との間の嵌合突縁部2の下部に下向き突条部2dが形成される。

【0011】一方、基材1の他側部においては、図2に示すように、上記嵌合突縁部2の水平突条部4の基端面と段部2cの基端面との間の幅寸法に等しく、且つ基材1の上面から係止溝5の上端面に達する厚みに略等しい切欠部となるように切削工具の切削刃で他側端面から断面1字状に切削3aしたのち、図3に示すように該切削部3aの内側端面の下部をさらに基材1の中央部に向かって水平に切込むことにより上記嵌合突縁部2の水平突条部4が嵌入可能な水平条溝6を掘削する。

【0012】次いで、切削部3aの削成によって残存させた基材1の他側部下部にその他側端面から上記係止溝5の幅寸法を残して上記下向き突条部2dの幅に略等しい幅部分を上方から上記切削工具の切削刃でもって、下面板1b近傍部に達する深さの嵌入溝7を掘削する。この嵌入溝7の形成によって基材1の他側部に嵌合突縁部2が嵌合可能な切欠部3が形成されると共に該嵌入溝7と基材1の他側端面間に上記係止溝5に嵌合可能な係合突条部8が形成されるものである。尚、上記方法では嵌合突縁部2を形成して係止溝5を削成した後、切欠部3を形成し、嵌入溝7を掘削しているが、嵌合突縁部2と切欠部3を先に形成し、各々係止溝5と嵌入溝7を形成するなど、切削装置の配置により順序は決定される。

【0013】このようにして製作した床材Aを施工するには、図4、図5に示すように、先に床下地材上に敷設、固定した床材A₁の他側端面に対して次に施工すべき床材A₂をその嵌合突縁部2側が下向き状態となるように傾斜させて該嵌合突縁部2を既に敷設した床材主体A₁の切欠部3に嵌め込む。この際、嵌合突縁部2から突設した水平突条部4を固定床材A₁の切欠部3の内側部に形成している水平条溝6に挿嵌させながら嵌合突縁部2の下面に突設している下向き突条部2dを切欠部3の底面に凹設した嵌入溝7に嵌入させると共に係止溝5を係合突条部に係止させ、床材A₂を徐々に水平状態となる方向に伏動させて固定した床材A₁の他端係合突条部8に床材A₂の一端端面下面に凹設している係止溝5を被嵌させるものである。

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【0014】このように床材Aを次々と接続して床を形成するものであるが、上記のように両床材A₁、A₂を接続させると、水平条溝6と水平突条部4との嵌合によって上下方向の妄動が規制される一方、下向き突条部2dと嵌入溝7との嵌合によって互いに離間する方向の動きを拘束され、目隙等が生じない精度のよい施工が可能となるものである。なお、ゴム板や弾性合成樹脂板よりなる下面板1bを貼着したことによって下地面との密接を良好にして不陸の発生をなくすると共に係合突条部8を補強することができる。

【0015】図6～図8は本発明の別な実施例を示すもので、図6に示すように、化粧単板貼合板、パーティクルボード、MDF、WPC単板貼合板等よりなる一定厚みの木質化粧板1aに下面板1cとして上記実施例における下面板1bよりも肉厚の軟質ないしは半硬質の合成樹脂板を一体に層着してなる基材1を使用し、この基材1の一侧部に上記実施例と同様にして図7に示すように水平突条部4と下向き突条部2dおよび係止溝5を設けた嵌合突縁部2を削成する一方、他側部に水平条溝6、嵌入溝7、係合突条部8を設けた切欠部3を削成するものである。この場合、嵌合突縁部2は木質化粧板1aのみによって形成すると共に切欠部3の底面に設けた嵌入溝7は下面板1cの上面に達する深さまで設けて下面板1cを溝底面に形成している。

【0016】また、図8に示す化粧板（床板）は、上記図6、図7に示した構造において、木質化粧板1aの厚みを薄くする一方、軟質ないしは半硬質合成樹脂板よりなる下面板1dの厚みを大きくして該下面板1dの両側部を切削加工することにより上記嵌合突縁部2や切欠部3等を形成してなるものである。

【0017】図9、図10は本発明のさらに別な実施例を示すもので、図9に示すように、長形状基材1を3層の板材によって形成し、この基材1を切削加工して図10に示すような化粧板（床板）を製作したものである。即ち、基材1として厚みの大なる軟質ないしは半硬質合成樹脂板を主板1dとし、該主板1dの上面に薄肉の化粧単板貼合板、パーティクルボード、MDF、WPC単板貼合板等よりなる木質化粧板1aを一体に貼着すると共に、下面に製作された化粧板の反りを防止するための薄肉の合板、パーティクルボード、発泡合成樹脂板等の板状材1eを貼着してなるものを使用している。このように3層からなる基材1の両側部における主として主板1dを上記実施例と同様に切削加工して図10に示すように、上記嵌合突縁部2や切欠部3等を形成するものである。

【0018】図11は上記3層の基材1の下面に緩衝性を有するクッション材1fを貼着して4層の基材1を形成し、この基材1の両側部を切削加工して嵌合突縁部2や切欠部3等を形成したものである。この場合、嵌合突縁部2の下面に突設した下向き突条部2dを板状材1eによって形成し、また、切欠部3の底面に設けた嵌入溝7も該

板状材1e部分に形成すると共にその溝底はクッション材1fに達しない深さとしている。なお、以上のいずれの実施例においても、嵌合突縁部2の突出端面に水平突条部4を形成する一方、切欠部3側に該水平突条部4が嵌入可能な水平条溝6を形成しているが、これらは必ずしも設けなくてもよい。

【0019】

【発明の効果】以上のように本発明の建築化粧板の製造方法によれば、一定厚みの木質化粧板の中間層ないしは下層に少なくとも一層のゴム又は合成樹脂板を層着して一定幅を有する長方形基材を形成したのち、この長方形基材の側縁部に切削加工によって少なくとも下面側に段部を有する一定幅の嵌合突縁部を形成すると共に該嵌合突縁部の下面基端部に適宜深さの係止溝を全長に亘って削成し、一方、基材の他側縁部に同じく切削加工によって上記嵌合突縁部が嵌合可能な断面形状を有する切欠部を削成すると共に該切欠部の他側端に上記係止溝が嵌合可能な係合突条部を削成することを特徴とするものであるから、長方形の基材の側縁部に対しては、少なくともその下端部を断面逆L字状に切除することにより嵌合突縁部を容易に削成し得ると共に該嵌合突縁部の基端部に下面からの切削によって所定幅と深さを有する係止溝を正確に切削し得るものである。

【0020】一方、基材の他側縁部に対しては、下部の所定厚みを残して上記嵌合突縁部の厚みと幅に相当する部分を切除することによって該嵌合突縁部が嵌合可能な切欠部を簡単に削成することができ、その際、基材の他側端面から上記係止溝の幅に略等しい幅を残して切欠部を掘削することにより、係止溝が嵌合可能な形状を有する係合突条部を同時に形成することができるものである。

【0021】さらに、上記のような嵌合突縁部とその下面基端に設けた係止溝、及びこれらの嵌合突縁部や係止溝がそれぞれ係合可能な切欠部と突条部は、適宜な切削

工具の切削刃を水平方向及び垂直方向に操作して基材の両側部を切削加工することによって容易に形成することができて生産性の向上を図ることができると共に、嵌合突縁部と係止溝の寸法に応じてそれぞれ切欠部と突条部の寸法を正確に設定できるので、精度のよい化粧材を得ることができるものである。

【図面の簡単な説明】

【図1】基材の一部斜視図、

【図2】その切削加工を説明するための斜視図、

【図3】削成した化粧材の一部斜視図、

【図4】施工状態を示す簡略斜視図、

【図5】施工後の係合状態を示す簡略斜視図、

【図6】本発明の別な実施例を示す基材の断面図、

【図7】該基材を切削加工して得られた化粧材の断面図、

【図8】化粧材の変形例を示す断面図、

【図9】本発明のさらに別な実施例を示す基材の断面図、

【図10】該基材を切削加工して得られた化粧材の断面図、

【図11】下面に緩衝材を層着した化粧材の断面図、

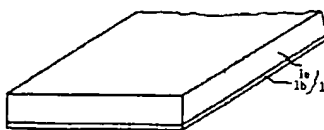
【図12】従来の化粧材の断面図、

【図13】その製造方法を説明するための断面図。

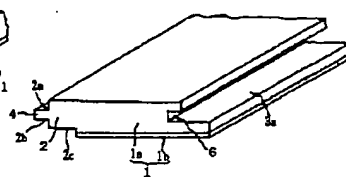
【符号の説明】

- 1 基材
- 2 嵌合突縁部
- 2d 下向き突条部
- 3 切欠部
- 4 水平突条部
- 5 係止溝
- 6 水平条溝
- 7 嵌入溝
- 8 係合突条部

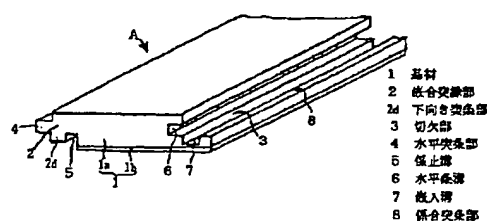
【図1】



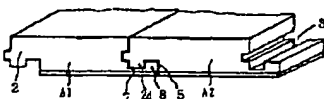
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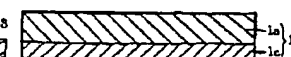
【図3】



【図5】



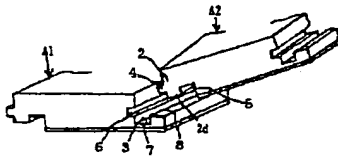
【図6】



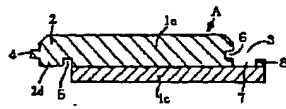
【図9】



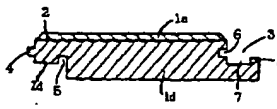
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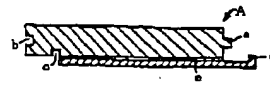
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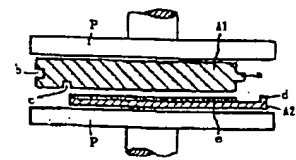
【図8】



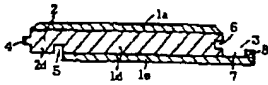
【図12】



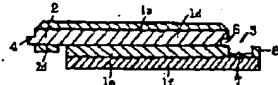
【図13】



【図10】



【図11】



F9b

**English translation of
the Japanese patent application
nr. 6-320510**

Japanese Unexamined Patent Publication No. 6-320510

Publication Date: November 22, 1994

Application No.: 5-139352

Application Date: May 17, 1993

Inventors: Aoki et al.

Applicant: Daiken Co., Ltd.

Title of the Invention:

METHOD FOR MANUFACTURING FACING MATERIAL FOR CONSTRUCTION

[Abstract]

[Object] To manufacture facing material for construction such as floor material and the like, easily and precisely.

[Configuration]

Regarding a rectangular base material 1 having a constant thickness comprises an elastic material lower plane plate 1b applied to the lower plane of a wood-quality facing material 1a, a horizontal protrusion 4 protruding in the horizontal direction from the center portion of the one side edge plane of the base material 1 is formed by cutting, and the lower plane is cut 2c in a stepped form to a certain thickness to carve a downward-facing retaining groove 5 of a certain thickness on the lower plane, thereby forming a fitting protrusion 2 of a certain width having the retaining groove 5 and horizontal protrusion 4 on the one side portion

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of the base material 1, while on the other hand the same cutting is used for the other side portion of the base material 1 to cut a notch 3 to which the fitting protrusion 2 is capable of fitting, and at the time of cutting this notch 3, a horizontal groove 6 to which the horizontal protrusion 4 can fit is carved at one side edge plane thereof, and a retaining protrusion portion 8 to which the retaining groove 5 can be retained with is carved at the other side edge.

[Claims]

1. A method for manufacturing facing material for construction, wherein at least one layer of rubber or synthetic resin plate is layered at an intermediate layer or lower layer of a wood-quality facing plate having a constant thickness so as to form a rectangular base material having a constant width, following which a fitting protrusion portion of a constant width having a stepped portion on the lower plane side is formed on the edge portion of said rectangular base material by means of a cutting process, and also cutting a retaining groove at an appropriate depth at the lower plane base edge portion of said fitting protrusion portion over the entire length thereof, and on the other hand using the same cutting process for the other side portion of said base material to cut a cross-sectional form

to which said fitting protrusion is capable of fitting, and also cutting an engaging protrusion portion at the other side edge of said cut portion to which said retaining groove is capable of fitting.

[Detailed Description of the Invention]

[0001]

[Industrial Field of the Invention] The present invention relates to a method whereby facing material for construction such as floor material or interior material can be manufactured easily and with precision..

[0002]

[Description of the Related Art] Conventionally, regarding construction facing material A such as floor material installed on a sub-floor of plywood or on sub-floor material such as a concrete slab or the like, or to be used as interior material for buildings, a construction such as shown in Fig. 12 is widely known, wherein a tongue portion "a" is erected on one side edge plane and a groove "b" capable of fitting to the tongue "a" is provided to the other side edge plane. Also, regarding the fitting between the tongue-and groove, slippage occurs in the direction of the facing material pieces being separated one from another, so as shown in the Figure, a retaining groove "c" is provided to the lower plane at the side of the groove "b" of the facing material A, and a protrusion d is formed to which

the above engaging groove "c" can fit with a small gap from the tongue "a" at the power plane at the tongue "a" side.

[0003]

In order to obtain such facing material A, a special blade is required in order to cut out the tongue "a" and protrusion "d" with a cutting tool, since the protrusion "d" is provided to the protruding side of the tongue "a", meaning difficulty in the cutting task, consequently requiring experience. Accordingly, as shown in Fig. 13, as shown in Fig. 13 a facing material piece A1 is formed with tongue-and-groove portions "a" and "b" formed on both side edges, and with an engaging groove "c" formed across a small gap from the side edge plane on the lower plane of one side portion, and a lower plane plate A2 having the protrusion "d" capable of engaging the engaging groove "c" is formed, following which the facing material piece A1 is placed upon the lower plane plate A2 with an adhesive agent "e" introduced therebetween, inserted between presses P and P and pressing, thus fabricating the article.

[0004]

[Problems to be Solved by the Invention] However, with such a manufacturing method, precise positioning of the facing material piece A1 and lower plane plate A2 is difficult, and further, the pressing and adhesion using the presses P and P causes slippage so facing material with good

precision cannot be manufactured, which may result in cases wherein the engaging of the tongue-and-groove "a" and "b", and the retaining between the retaining groove "c" and the protrusion "d" cannot be performed smoothly. It is an object of the present invention to provide a method for manufacturing facing material for construction which is capable of solving such problems.

[0005]

[Means for Solving the Problems] In order to achieve the above object, regarding the method for manufacturing facing material for construction according to the present invention, first, at least one layer of rubber or synthetic resin plate is layered at an intermediate layer or lower layer of a wood-quality facing plate having a constant thickness so as to form a rectangular base material having a constant width. Next, a fitting protrusion portion of a constant width having a reverse-L-shaped cross-sectional form stepped portion on the lower plane side at least is formed on the edge portion of the rectangular base material by means of a cutting process, and also a retaining groove is cut at an appropriate depth at the lower plane base edge portion of the fitting protrusion portion over the entire length thereof, and on the other hand, the same cutting process is used for the other side portion of the base material to cut a cross-sectional form to which the fitting protrusion is

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capable of fitting, and also cutting an engaging protrusion portion at the other side edge of the cut portion to which the retaining groove is capable of fitting.

[0006]

[Operation] A fitting protrusion portion and a notch portion to which the fitting protrusion can fit are cut in the both side edge portions of rectangular base material having a constant thickness and width, using an appropriate cutting tool. At this time, regarding the one side edge portion of the base material, the fitting protrusion portion is formed by cutting away at least the lower edge portion thereof in a reverse-L-shaped cross-sectional form, and regarding the other side edge portion, at least the lower edge portion of a certain thickness is left and cut into an L-shaped cross-sectional form. Thus cutting can be easily performed by cutting with a cutting blade from the horizontal direction to the side edge portions of the base material.

[0007]

Next, a retaining groove having a constant width is cut in the lower plane base edge portion of the fitting protrusion portion, across from a certain gap from the protrusion edge plane, while cutting the bottom of the notched portion cut into an L-shaped cross-sectional form at the other side edge plane into a groove form so as to leave

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a constant width portion, thereby simultaneously forming a notch to which the fitting protrusion portion can fit and a protrusion portion to which the retaining groove and fit.. These retaining grooves, notches, and protrusions can be formed at accurate positions with high precision, by carving out the base material from the lower side and upper side of the base material

[0008]

[Embodiments] Describing an embodiment of the present invention based on the drawings, first, as shown in Fig. 1, a lower plane plate 1b formed of a thin rubber plate or an elastic synthetic resin plate is integrally adhere to the lower plane of a wood-quality facing plate 1a formed of laminated lumber, plywood, particle board, MDF, etc., thereby forming a rectangular base material 1 of a constant width and thickness. Next, a fitting protrusion portion 2 is cut over the entire length of the base material 1 using an appropriate cutting tool (not shown), and a notch 3 having a cross-sectional form to which the fitting protrusion portion 2 can fit is cut out.

[0009]

Describing the procedures for cutting out the fitting protrusion portion 2 and notch 3; as shown in Fig. 2, at one side portion of the base material 1 cuts 2a and 2b are made from the side edge plane of the base material at a constant

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width in an L-shaped cross-sectional form and a reverse-L-shaped cross-sectional form above and below the center portion leaving a certain thickness therebetween, thereby forming a horizontal protrusion portion 4 having a constant width protruding in the outward direction for a constant length from the center of the side edge between these cut portions 2a and 2b, and also cutting horizontally at a constant width at the lower plane plate 1b and the lower player portion of the wood-quality material 1a above, from the lower portion of the base edge of the cut portion 2b at the lower side having a reverse-L-shaped form, thereby cutting out a step portion 2c, and thus forming the portion from the protruding surface of the horizontal protrusion 4 to the base edge of the step portion 2c into a fitting protrusion portion 2.

[0010]

Also, cutting of the above cut portion 2a and 2b, and the step 2c can be easily performed by cutting with a cutting blade of a cutting tool from the direction of plate width (horizontal direction) of the base material. Further, at the lower plane base edge portion of the fitting protrusion 2, that is to say, as shown in Fig. 3, at the base edge portion of the above step 2c, a retaining groove 5 having a constant width and reaching to a constant depth from the lower plane is cut out. This retaining groove 5

can be easily cut by cutting with the cutting blade of a cutting tool pointed upwards. The cutting of this retaining groove 5 forms a downward-facing protrusion portion 2d at the lower portion of the fitting protrusion portion between the lower plane base edge of the horizontal protrusion 4 and the retaining groove 5.

[0011]

On the other hand, at the other side of the base material 1, as shown in Fig. 2, a cut 3a is made in an L-shaped cross-sectional form with the cutting blade of a cutting tool so as to be equal to the width dimensions between the base edge plane of the horizontal protrusion portion 4 of the fitting protrusion portion 2 and the base edge plane of the step 2c thereof, and also so as to be a notch which is generally equal to the thickness reaching from the upper surface of the base material 1 to the upper edge plane of the retaining groove 5, following which as shown in Fig. 3, the lower portion of the inner side edge plane of the cut 3a is further cut in a horizontal direction toward the center portion of the base material 1, thereby carving out a horizontal groove 6 into which the horizontal protrusion portion 4 of the above fitting protrusion 2 is capable of fitting.

[0012]

Next, regarding the other side lower portion of the

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base material which was left remaining by the cutting of the cut 3a is cut from the other side edge plane at a width generally equal to the width of the above downward-facing protrusion 2d leaving the width dimension of the retaining groove 5 using the cutting blade of the cutting tool form above, thereby carving out a fitting groove 7 of a depth reaching near to the lower plane plate 1b. The formation of this fitting groove 7 forms a notch 3 in the other side portion of the base material 1 into which the fitting protrusion 2 can fit, and forms an engaging protrusion portion 8 between the fitting groove 7 and the other side edge plane of the base material 1, capable of fitting to the retaining groove 5. Incidentally, with the above method, following forming of the fitting protrusion 2 and cutting out of the retaining groove 5, a notch 3 is formed and a fitting groove 7 is carved out, but the order thereof is determined according to the positioning of the cutting apparatus, such as forming the fitting protrusion 2 and notch 3 first and then forming the retaining groove 5 and fitting groove 7.

[0013]

In order to install the floor material A thus manufactured, as shown in Fig. 4 and Fig. 5, the floor material A2 to be laid next is inclined as to the floor material A1 already laid and fixed onto a sub-floor, so that

the fitting protrusion portion 2 thereof faces downwards and the fitting protrusion portion 2 of the floor material A2 fits into the notch 3 of the already-laid floor material A1. At this time, the horizontal protrusion 4 protruding from the fitting protrusion 2 is inserted and fit into the horizontal groove 6 which is formed at the inner side portion of the notch 3 of the floor material A1, and the downward-facing protrusion 2d erected at the lower plane of the fitting protrusion 2 is fit into the fitting groove 7 recessed at the bottom of the notch 3 and the retaining groove 5 is retained at the retaining protrusion, and the floor material A2 is gradually laid down in the horizontal direction so as to fit the engaging groove 5 recessed at one side edge portion of the floor material A2 over the retaining protrusion portion 8 at the other edge of the fixed floor material A1.

[0014]

The floor material A is thus successively connected so as to form the floor, and connecting the floor material pieces A1 and A2 as described above causes the vertical movement to be restricted by the fitting of the horizontal groove 6 and the horizontal protrusion 4, and the movement in the direction of separating one from another to be stopped by the fitting of the downward-facing protrusion 2d and fitting groove 7, so installation with enough precision

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that gaps and the like do not occur can be performed. Also, the adhesion of the lower plane plate 1b formed of a rubber plate or elastic synthetic resin plate or the like allows the close contact with the sub-floor to be suitable, without unevenness occurring, and also the engaging protrusion portion 8 can be strengthened.

[0015]

Fig. 6 through Fig. 8 illustrate another embodiment of the present invention, wherein, as shown in Fig. 6, a base material 14 is used which is formed of a lower plane plate 1c of a soft or a half-hard synthetic resin plate that is thicker than the lower plane plate 1b in the above embodiment being integrally adhered onto a wood-quality facing plate 1a of a constant thickness, formed of decorative laminated veneer, particle board, MDF, WPC laminated veneer, etc., and a horizontal protrusion 4 and downward-facing protrusion 2d and retaining groove 5 provided to a fitting protrusion are formed on the one side portion of this base material 1 in the same manner as with the above embodiment as shown in Fig. 7, and on the other side portion are formed a horizontal groove 6, insertion groove, and engaging protrusion 8 of a notch 3. In this case, the fitting protrusion 2 is formed only of the wood-quality facing plate 1a, and the fitting groove 7 provided to the bottom of the notch 3 is provided to a depth reaching

the upper plane of the lower plane plate 1c, thereby forming the lower plane plate 1c at the bottom of the groove.

[0016]

Also, the facing plate (floorboard) shown in Fig. 8 is, in regard to the construction shown in Fig. 6 and Fig. 7, such that the thickness of the wood quality facing plate 1a is made thinner, and the thickness of the lower plane plate 1d formed of a soft or a half-hard synthetic resin plate is made thicker, and the both edge portions of the lower plane plate 1d are cut and worked to form the above fitting protrusion 2, notch 3, and the like.

[0017]

Fig. 9 and Fig. 10 illustrate yet another embodiment of the present invention, and as shown in Fig. 9, a rectangular base material 1 is formed of a tri-layer board material, and this base material 1 is cut and worked to manufacture facing plates (floorboards) such as shown in Fig. 10. That is, for the base material 1, a main plate 1d formed of a soft or a half-hard synthetic resin plate is formed so as to be thick, a thin wood-quality facing plate 1a formed of decorative laminated veneer, particle board, MDF, WPC laminated veneer, etc., is adhered upon the main plate 1d, and a plate-like material piece 1e formed of thin plywood, particle board, synthetic resin forma, etc., is adhered in order to prevent the facing plate formed to the lower plane from bowing.

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Even in the event that the base material 1 thus formed of three layers is worked mainly regarding the main plate 1d at the edge portions thereof in the same manner as with the above embodiments as shown in Fig. 10, the above fitting protrusion 2, groove 3, etc., can be formed.

[0018]

Fig. 11 is an arrangement wherein a cushion material 1f having buffering properties is applied to the lower plane of the above tri-layer base material 1 so as to form a base material 1 of four layers, wherein the edge portions of the base material 1 are cut to form the above fitting protrusion 2, groove 3, etc. In this case, the downward-facing protrusion 2d erected on the lower plane of the fitting protrusion 2 is formed of the plate-like material piece 1e, and the fitting groove 7 provided to the bottom of the notch 3 is also formed in the plate-like material piece 1e and the bottom of the groove is not so deep as to reach the cushion material 1f. Incidentally, though all of the above embodiments are provided with a horizontal protrusion 4 at the protrusion edge plane of the fitting protrusion 2, and a horizontal groove 6 in the notch 3 into which the horizontal protrusion 4 can fit, but this does not necessarily have to be provided.

[0019]

[Advantages]

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According to the method for manufacturing facing material for construction according to the present invention, at least one layer of rubber or synthetic resin plate is layered at an intermediate layer or lower layer of a wood-quality facing plate having a constant thickness so as to form a rectangular base material having a constant width, following which a fitting protrusion portion of a constant width having a stepped portion on the lower plane side is formed on the edge portion of the rectangular base material by means of a cutting process, and also a retaining groove is cut at an appropriate depth at the lower plane base edge portion of the fitting protrusion portion over the entire length thereof, and on the other hand the same cutting process is used for the other side portion of the base material to cut a cross-sectional form to which the fitting protrusion is capable of fitting, and also an engaging protrusion portion is cut at the other side edge of the cut portion to which the retaining groove is capable of fitting, so regarding one edge side of the rectangular base material, a fitting protrusion can be easily formed by cutting the lower edge portion thereof in a reverse-L-shaped cross-sectional form, and a retaining groove having a certain width and depth can be accurately cut out from the lower plane of the base edge of the fitting protrusion.

[0020]

On the other hand, regarding the other side edge portion of the base material, a portion equivalent to the thickness and width of the fitting protrusion is cut out leaving a predetermined thickness at the lower portion, thereby easily cutting out a notch to which the fitting protrusion can fit. At this time, the notch is carved out of the other side edge plane of the base material leaving a width which is generally the same as the width of the above retaining groove, so that a form to which the retaining groove can fit is formed at the same time.

[0021]

Further, the fitting protrusion and the retaining groove provided to the lower plane base edge thereof, and the notch and protrusion capable of fitting to the fitting protrusion and the retaining groove can be easily cut by operating the cutting blade of an appropriate cutting tool in the horizontal and vertical directions, so productivity can be improved, and also the dimensions of the notch and protrusion can be precisely set according to the dimensions of the fitting protrusion and the retaining groove, thus obtaining facing material with good precision.

[Brief Description of the Drawings]

[Fig. 1] Fig. 1 is a partial perspective view of the base material.

[Fig. 2] Fig. 2 is a perspective view for describing the

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cutting process thereof.

[Fig. 3] Fig. 3 is a partial perspective view of the cut facing material.

[Fig. 4] Fig. 4 is a simplified perspective view illustrating the state of installation.

[Fig. 5] Fig. 5 is a simplified perspective view illustrating the state of junction following installation.

[Fig. 6] Fig. 6 is a cross-sectional view of base material illustrating another embodiment of the present invention.

[Fig. 7] Fig. 7 is a cross-sectional view of facing material obtained by cutting and working the base material.

[Fig. 8] Fig. 8 is a cross-sectional view of base material illustrating a variation of the facing material.

[Fig. 9] Fig. 9 is a cross-sectional view of base material illustrating yet another embodiment of the present invention.

[Fig. 10] Fig. 10 is a cross-sectional view of the facing material obtained by cutting and working the base material.

[Fig. 11] Fig. 11 is a cross-sectional view of the facing material with buffering material applied to the lower face thereof.

[Fig. 12] Fig. 12 is a cross-sectional view of conventional facing material.

[Fig. 13] Fig. 13 is a cross-sectional view for describing the manufacturing method thereof.

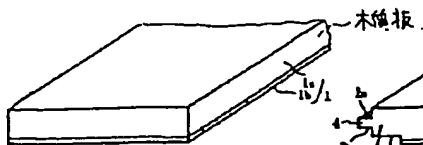
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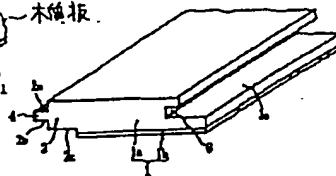
- 1 Base material
- 2 fitting protrusion
- 2a downward-facing protrusion
- 3 Notch
- 4 Horizontal protrusion
- 5 Retaining groove
- 6 Horizontal groove
- 7 Fitting groove
- 8 Engaging protrusion

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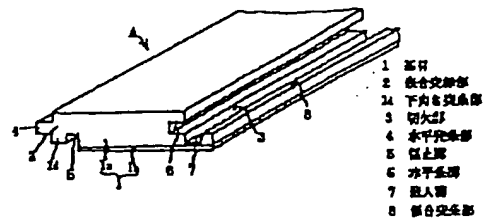
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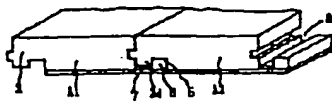
【图2】



【图3】



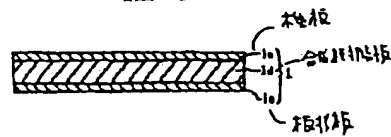
【图5】



【图6】



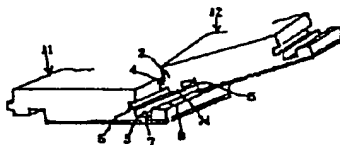
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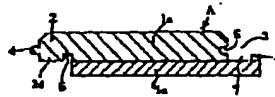
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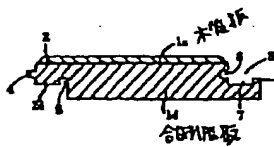
【图4】



【图7】



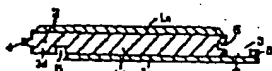
【图8】



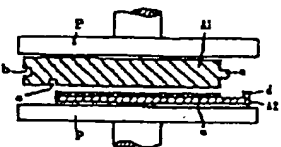
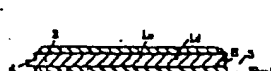
【图12】往來4切

【图13】

【图10】



【图11】



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